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EXAMINER

DICHT, RACHEL S

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| ART UNIT | PAPER NUMBER |
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2853

DATE MAILED: 11/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H.A

Office Action Summary

Application No.

10/665,053

Applicant(s)

BYBEE ET AL.

Examiner

Rachel Dicht

Art Unit

2853

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 October 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-73 is/are pending in the application.
- 4a) Of the above claim(s) 14, 15, 17-22, 28, 29, 31, 32, 34-39, 53, 54 and 68 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 10 is/are allowed.
- 6) ☒ Claim(s) 1, 2, 6-9, 11, 13, 23-27, 30, 33, 40-44, 47-49, 55-66, 68, 70, 71 and 73 is/are rejected.
- 7) ☒ Claim(s) 3-5, 10, 12, 45, 46, 50-52, 69 and 72 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claim 40 are objected to because of the following informalities:

Claim 40 is dependant on a withdrawn claim.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 2, 6, 7, 8, 9, 16, 23, 24, 25, 26, 44, 47, 48, 55, 56, 62, 63, 64, 65, 68, 70 and 73 are rejected under 35 U.S.C. 102(b) as being anticipated by Dunn et al. (US Pat. No. 5,153,612).

In regard to:

Claim 1:

Dunn et al. teaches an ink delivery regulation apparatus, comprising: an ink chamber (22, Fig. 2) configured to contain a quantity of ink; a support (52, Fig. 2) configured to be coupled to said ink chamber (22, Fig. 2), a resilient deflection member (24, Fig. 2) coupled to said support, said resilient deflection member extending into said ink chamber and occupying a volume thereof, said

Art Unit: 2853

resilient deflection member being configured to resiliently deflect between a generally concave shape (24, Fig. 2) [[to]] and a generally convex shape (dashed lines in Fig. 4) in response to a change in a negative pressure in said ink exterior to said resilient deflection member (refer to column 5 lines 11-16).

Claim 2:

Dunn et al. teaches an ink delivery regulation apparatus wherein said support is configured to sealingly engage said ink chamber (50, Fig. 4) (refer to column 4 lines 46-47).

Claim 6 and 7:

Dunn et al. teaches an ink delivery regulation apparatus wherein said deflection member (24, Fig. 2) comprises an elastomeric material and where said elastomeric material comprises EPDM/Butyl (refer to column 4 lines 62-64).

Claim 8:

Dunn et al. teaches an ink delivery regulation apparatus wherein the said resilient deflection member (24, Fig. 2) is of substantially uniform thickness (Fig. 2 and 4) (refer to column 4 lines 65-68).

Claim 9:

Dunn et al. teaches an ink delivery apparatus comprising an ink chamber (22, Fig. 2), and a pressure regulation member (refer to column 1 lines 23-27) having a support (52, Fig. 2) configured to be coupled to said ink chamber and a resilient deflection member (24, Fig. 2) extending from said support and into said ink chamber occupying a volume thereof, said resilient deflection member being configured to resiliently deflect between a generally concave shape (24, Fig. 2) [[to]] and a generally convex shape (dashed lines in Fig. 4) in response to a change in a negative pressure in said ink chamber exterior to said resilient deflection member (refer to column 5 lines 11-16).

Claim 16:

Dunn et al. teaches an ink delivery apparatus further comprising a fitment (28, Fig. 2) associated with said ink chamber.

Claim 23:

Dunn et al. teaches an ink delivery apparatus wherein the fitment (28, Fig. 2) is coupled with a print head (26, Fig. 2).

Art Unit: 2853

Claim 24:

Dunn et al. teaches an ink delivery apparatus further comprising a bubble generator associated with said chamber (70, Fig. 2) (refer to column 6 lines 17-19).

Claim 25:

Dunn et al. teaches an ink delivery apparatus wherein said bubble generator is configured to limit said negative pressure within said chamber to a pressure equivalent to about 6" of water column during an operational period of said apparatus (refer to column 5 line 49 and column 6 line 13).

Claim 26:

Dunn et al. teaches an ink delivery apparatus wherein said bubble generator is disposed in said fitment (70 and 26, Fig. 2).

Claim 44:

Dunn et al. teaches a printing device comprising an ink chamber (22, Fig. 2) configured to contain a quantity of ink, a pressure regulation member having a support (52, Fig. 2) coupled to said ink chamber, a resilient deflection member (24, Fig. 2) extending from said support into said ink chamber and occupying a volume thereof, said resilient deflection member being configured to resiliently deflect between a generally concave shape (24, Fig. 2) [[to]] and a generally

Art Unit: 2853

convex shape (dashed lines in Fig. 4) in response to a change in negative pressure (refer to column 5 lines 11-16), a fitment (28, Fig. 2) coupled to said ink chamber, a bubble generator (70, Fig. 2) in communication with said ink chamber, and a print head coupled to said ink chamber (26, Fig. 2).

Claim 47 and 48:

This claim is rejected on the basis set forth for claim 25 as discussed above.

Claim 55:

Dunn et al. teaches a method of delivering ink comprising: providing an ink chamber (22, Fig. 2) containing an ink and wherein is disposed a deflection member (24, Fig. 2) extending into said ink chamber and occupying a volume thereof; establishing a negative pressure in said chamber exterior to said deflection member (refer to column 5 lines 28-38), supplying ink to print head (refer to column 5 lines (20-27), and regulating a level of said negative pressure within a pre-determined range during said supplying of said ink by resiliently deflecting said deflection member in response changes in said negative pressure (refer to column 5 lines 11-16).

Art Unit: 2853

Claim 56:

Dunn et al. teaches a method wherein said regulating step further comprises resilient deflecting said deflection member (24, Fig. 2) between a generally concave shape (24, Fig. 2) to a generally convex shape (dashed lines in Fig. 4).

Claim 62:

Dunn et al. teaches a method wherein said step of establishing said negative pressure comprises applying a positive pressure to said deflection member during a filling step, and removing said positive pressure at an end of said filling step (refer to column 5 lines 30-38).

Claim 63

Dunn et al. teaches a method wherein said step of establishing said negative pressure comprises removing a small amount of said ink (refer to column 5 lines 30-38).

Claim 64:

Dunn et al. teaches a method of delivering ink further comprising moving said ink chamber (60, Fig. 2) with said print head (26, Fig. 2).

Art Unit: 2853

Claim 65:

Dunn et al. teaches an ink delivery system comprising: containing means for containing a supply of ink for a print head (26, Fig. 2), means for establishing a negative pressure in said containing means (refer to column 5 lines 30-38), and means for maintaining said negative pressure within a predetermined range, said means for maintaining said negative pressure extending into and occupying a volume of said means for containing a supply of ink and flexing in response to changes in said negative pressure within said means for containing and exterior to said means for maintaining said negative pressure (refer to column 5 lines 11-16).

Claim 68:

Dunn et al. teaches a system further comprising means for providing positive pressure in said containing means (bubble generator 70, Fig. 2).

Claim 70:

Dunn et al. teaches an apparatus further comprising multiple resilient deflection members (24, Fig. 2) that are integrated together and configured to be respectively positioned in a plurality of corresponding ink chambers (20, Fig. 2).

Art Unit: 2853

Claim 73:

Dunn et al. teaches an ink delivery regulation apparatus, comprising: an ink chamber (22, Fig. 2) configured to contain a quantity of ink; a support (52, Fig. 2) configured to be coupled to said ink chamber; and a resilient deflection member (24, Fig. 2) coupled to said support, said resilient deflection member extending into said ink chamber, said resilient deflection member being configured to resiliently deflect in response to a change in a negative pressure in ink held between a side wall of said ink chamber and said resilient deflection member (refer to column 5 lines 11-16).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 11, 13, 49, 57, 58, 59, 60, and 61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dunn et al. (US Pat. No. 5,153,612) in view of Scheffelin et al. (US Pat. No. 5,745,137).

Art Unit: 2853

In regard to:

Claim 11:

The device of Dunn et al. DIFFERS from claim 11 in that it fails to teach an apparatus further comprising a plurality of ink chambers.

However, Scheffelin et al. teaches an apparatus further comprising a plurality of ink chambers (250, Fig. 9)(refer to column 7 lines 40-42).

Claim 13:

The device of Dunn et al. DIFFERS from claim 12 in that it fails to teach an apparatus wherein said plurality of ink chambers is configured to contain a plurality of differently colored inks.

However, Scheffelin et al. teaches an apparatus wherein said plurality of ink chambers is configured to contain a plurality of differently colored inks (refer to column 7 lines 58-60).

Claim 49:

The device of Dunn et al. DIFFERS from claim 49 in that it fails to teach a printing device comprising a plurality of ink chambers.

However, Scheffelin et al. teaches a printing device comprising a plurality of ink chambers (250, Fig. 9) (refer to column 7 lines 41-43).

Claim 57:

The device of Dunn et al. DIFFERS from claim 57 in that it fails to teach a method of delivering ink further comprising providing a plurality of said ink chambers and a corresponding plurality of said deflection members, wherein a deflection member is disposed in each of said chambers.

However, Scheffelin et al. teaches a method of delivering ink further comprising providing a plurality of said ink chambers (250, Fig. 9) and a corresponding plurality of said deflection members, wherein a deflection member (22 and 24, fig. 1) is disposed in each of said chambers (refer to column 4 lines 42-45).

Claim 58:

The device of Dunn et al. DIFFERS from claim 58 in that it fails to teach a method of delivering ink wherein each of said plurality of said chambers is configured to contain a differently colored ink.

Art Unit: 2853

However, Scheffelin et al. teaches a method of delivering ink wherein each of said plurality of said chambers (250, Fig. 9) is configured to contain a differently colored ink (refer to column 7 lines 58-60).

Claim 59:

The device of Dunn et al. DIFFERS from claim 59 in that it fails to teach a method of delivering ink further comprising an internal pressure source.

However, Scheffelin et al. teaches a method of delivering ink further comprising an internal pressure source (30, Fig. 1) (refer to column 4 lines 56-60).

Claim 60:

Dunn et al. teaches a method of delivering ink wherein said internal pressure source comprises a bubble generator (70, Fig. 2) (refer to column 6 lines 17-19).

Claim 61:

However, Dunn et al. further teaches a method of delivering ink wherein said bubble generator is tuned to pressure equivalent of about 6" of water (refer to column 5 line 49 and column 6 lines 9-13).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of Dunn et al. to include a plurality of ink chambers as taught by Scheffelin et al. for the purpose of faster printing.

6. Claims 27, 30, 33, 40, 41, 42, and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Scheffelin et al. (US Pat. No. 5,745,137) in view of Dunn et al. (US Pat. No. 5,153,612).

In regard to:

Claim 27:

Scheffelin et al. teaches an ink delivery apparatus comprising a plurality of ink chambers (250, Fig. 9) (refer to column 7 lines 40-42), an integral pressure regulation assembly having a plurality of pressure regulation members (30, 40, and 50, Fig. 1) corresponding to said plurality of ink chambers (238, Fig. 9), said assembly being configured to couple to said plurality of ink chambers; wherein each pressure regulation member is configured to be positioned within one of said plurality of ink chambers (refer to column 4 lines 41-44 and line 56-60).

Incorporating all arguments of claim 27 it is noted that Scheffelin et al. fails to teach a resilient deflection member, said resilient deflection member being configured to resiliently deflect between a generally concave shape [[to]] and a generally convex shape in response to a change in negative pressure.

However, Dunn et al. teaches a resilient deflection member (24, Fig. 2), said resilient deflection member being configured to resiliently deflect between a generally concave shape (24, Fig. 2) [[to]] and a generally convex shape (dashed lines in Fig. 4) in response to a change in negative pressure (refer to column 5 lines 11-16).

Claim 30:

Scheffelin et al. teaches an apparatus wherein said plurality of ink chambers is configured to contain a plurality of differently colored inks (refer to column 7 lines 58-60).

Claim 33:

The device of Scheffelin et al. DIFFERS from claim 33 in that it fails to teach an ink delivery apparatus further comprising a fitment associated with said ink chamber.

However, Dunn et al. further teaches an ink delivery apparatus further comprising a fitment (28, Fig. 2) associated with said ink chamber (22, Fig. 2).

Claim 40:

The device of Scheffelin et al. DIFFERS from claim 40 in that it fails to teach an ink delivery apparatus wherein said fitment is configured to couple with a print head.

However, Dunn et al. further teaches an ink delivery apparatus wherein said fitment (28, Fig. 2) is configured to couple with a print head (26, Fig. 2).

Claim 41:

The device of Scheffelin et al. DIFFERS from claim 41 in that it fails to teach an ink delivery apparatus further comprising a bubble generator associated with said chamber.

However, Dunn et al. further teaches an ink delivery apparatus further comprising a bubble generator (70, Fig. 2) associated with said chamber (22, Fig. 2).

Claim 42:

The device of Scheffelin et al. DIFFERS from claim 42 in that it fails to teach an ink delivery apparatus wherein said bubble generator is configured to limit said negative pressure within said chamber to a pressure equivalent to about 6" of water column during an operational period of said apparatus.

However, Dunn et al. further teaches an ink delivery apparatus wherein said bubble generator is configured to limit said negative pressure within said chamber to a pressure equivalent to about 6" of water column during an operational period of said apparatus (refer to column 5 line 49 and column 6 lines 9-13 and 40-43).

Claim 43:

The device of Scheffelin et al. DIFFERS from claim 42 in that it fails to teach an ink delivery apparatus wherein said bubble generator is disposed in said fitment.

However, Dunn et al. further teaches an ink delivery apparatus wherein said bubble generator (70, Fig. 2) is disposed in said fitment (28, Fig. 2).

Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Scheffelin et al. to include a fitment associated with said ink chamber as taught by Dunn et al. for the purpose of connecting the ink chamber with the print head.

7. Claim 66 and 71 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dunn et al. (US Pat. No. 5,153,612) in view of Clark et al. (US Pat. No. 5,734,401).

Art Unit: 2853

In regard to:

Claim 66:

The device of Dunn et al. DIFFERS from claim 66 in that it fails to teach an ink delivery system further comprising means for monitoring said negative pressure.

However, Clark et al. teaches an ink delivery system further comprising means (30, Fig. 3) for monitoring said negative pressure (refer to column 8 lines 51-53)

Claim 71:

The device of Dunn et al. DIFFERS from claim 66 in that it fails to teach an apparatus wherein said deflection member is configured to change shape in response to a change in ambient conditions so as to maintain said negative pressure within predetermined limits.

However, Clark et al. teaches an ink deliver system wherein said deflection member is configured to change shape in response to a change in ambient conditions so as to maintain said negative pressure within predetermined limits (refer to column 4 lines 18-24 and column 8 lines 51-62).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Dunn et al. to include means for monitoring the negative pressure of the system as taught by Clark et al. for the purpose of extending the life of the print head by preventing "dry" firing of the ink jets.

Allowable Subject Matter

8. Claims 3, 4, 5, 10, 12, 45, 46, 50-52, 69, and 72 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. Claim 10 is allowed.

10. The following is a statement of reasons for the indication of allowable subject matter: The primary reason for the allowance of claims 3, 4, 5, 10, 12, 45, 46, 50-52, 69, and 72 is the inclusion of the limitation of:

Claim 3:

The apparatus wherein said resilient deflection member comprises a number of pressure tuned panels disposed at angles with respect to each other.

Claims 4 and 5:

Dependant on claim 3.

Art Unit: 2853

Claim 10:

The apparatus comprises a plurality of pressure regulation members.

Claim 12:

The apparatus further comprising a plurality of pressure regulation members associated with each of said chambers.

Claim 45:

The device wherein said resilient deflection member comprises first, second, and third pressure tuned panel portions.

Claim 46:

Dependant on claim 45.

Claim 50:

The device wherein said plurality of chambers comprises three chambers.

Claims 51 and 52:

Dependant on claim 50.

Claim 69:

The apparatus further comprising a pair of said resilient deflection members configured to be positioned in said ink chamber to regulate said negative pressure in said ink chamber.

Claim 72:

Dependant on claim 12.

It is these limitations found in each of the claims, as it is claimed in the combination, that has not been found, taught or suggested by the prior art of record which makes these claims allowable over the prior art.

Response to Arguments

11. Applicant's arguments filed 27 October 2005 have been fully considered but they are not persuasive. The applicant argues that in regard to claim 1 Dunn et al. does not teach a resilient deflection member that extends into an ink chamber and deflects from a concave shape to a convex shape in response to a change in negative pressure in said ink exterior to said resilient deflection member. The examiner disagrees. It can be generally seen in Figure 4 that the resilient deflection member 24 moves from a generally convex shape to a concave shape as liquid is ejected from the bladder. As the liquid is ejected the pressure outside of the reservoir bladder becomes greater than the ink inside the bag causing it to collapse.

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rachel Dicht whose telephone number is 571-272-8544. The examiner can normally be reached on 7:00 am - 3:30 pm Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on 571-272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2853

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RSD



November 1, 2005

 11/4/05

MANISH S. SHAH
PRIMARY EXAMINER